Young DUI Offenders Seen in Substance Abuse Treatment

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Introduction

Despite considerable efforts to reduce the burden of driving while under the influence of alcohol or drugs, Driving Under the Influence (DUI) crashes remain a major road safety problem (Chou et al., 2006). While research has demonstrated that apprehended DUI offenders are often a heterogenic group (Begg et al., 2003; Nochajski & Stasiewicz, 2006), young offenders remain an "at risk" group and continue to be disproportionately represented in DUI statistics (Chou et al., 2006; Chirstoffersen et al., in press; Greening & Stoppelbein, 2000; Horwood & Fergusson, 2000). Young men ages 18 to 20 reported DUI more frequently than any other age group (Shults et al., 2002; Quinlan et al., 2005), and not surprisingly, age and DUI have a negative relationship (Chou et al., 2006). Being involved in an alcohol-related crash at a young age does not appear to be a significant deterrent against re-offending, as research has indicated such individuals are in fact more likely to drink and drive as well as crash again in the future (Ferrante et al., 2001). And young males are at a higher risk of engaging in DUI offenses than females (Chou et al., 2006), although an increasing number of females are being apprehended for DUI offenses and entering treatment programs as a result of a DUI (Maxwell et al., 2007).

In regard to the changing risk factors associated with DUI within this population, research is beginning to demonstrate that young drivers may in fact be more likely to drive after consuming drugs rather than alcohol (Fergusson et al., in press). Historically, there has been the general assumption that alcohol plays a greater role in DUI crashes than other substances (National Traffic Safety Administration, 1999; Sexton et al., 2002), and DUI education programs have traditionally reflected this assumption. As a result, many communities have focused on investing funds into drink driving legislation and awareness campaigns with little attention directed towards other drugs such as cannabis (Fergusson et al., in press). More recently, a growing level of focus on drug driving behaviors has resulted in an increasing body of evidence that suggests motorists, in particular younger drivers, are in fact more likely to consume illicit substances and then drive rather than drink and drive (Davey et al., 2007; Fergusson et al., in press). These younger drivers are 2.5 times more likely to drug and drive than drink and drive (Fergusson et al., in press). And research is beginning to demonstrate that drugging drivers are more likely to persist with their offending behavior than drinking drivers (Christophersen et al., 2002; Nochajski, 1999).

Pooled data from the 2002 and 2003 U.S. National Survey on Drug Use and Health found that 21 percent of those ages 16 to 20 reported DUI involving either alcohol or illicit drugs in the past year. In this age group, 17 percent reported past year DUI involving alcohol, 14 percent reported DUI involving illicit drugs, and 8 percent reported DUI involving a combination of alcohol and illicit drugs used together (SAMHSA, 2004).

Sanctions for driving under the influence include fines and incarceration to deter drinking and driving, incapacitating actions such as license suspensions and vehicle actions, education programs, and treatment. Education programs assume the driver committed the offense because of lack of knowledge about the laws, the effects of alcohol or drugs on driving, and ways to avoid driving under the influence. The education programs are targeted to first-time offenders and are generally delivered in a classroom setting of 10 to 14 hours (Voss & Fisher, 2001).

Recently, research has been directed towards developing effective technologies to detect individuals who have consumed drugs before driving (International Council on Alcohol, Drugs, and Traffic Safety's Working Group on Illegal Drugs and Driving, 2005). These research initiatives have been complemented with new legislation in a number of countries that involve random roadside drug testing of motorists and/or testing of drivers suspected of being under the influence of drugs. The increased attention on drug driving behavior (especially through improved detection methods) is proving fruitful as it is highlighting the extent of the problem in Australia as well as other countries that are embracing new testing approaches (Davey et al., 2007). However, questions remain as to the characteristics of these young drivers, changes in their substance use patterns over time, and whether the use of drugs is being adequately reflected in the DUI education programs.

To increase the effectiveness of these DUI education programs, more information is needed on the characteristics of minors arrested for driving under the influence. Between September 1, 2002 and July 1, 2006, 10,532 young Texans under age 21 were arrested for a DUI; they composed 7.5% of all DUI arrests in Texas during that time period. Of this young population, 5 were age 15, 25 were age 16, 821 were age 17, 2249 were age 18, 3362 were age 19, and 4071 were age 20. Some 2.5% were Black males, 0.5% were Black females, 69% were White males, and 15% were White females (Maxwell, 2008). The ethnicity was not reported, which is a major problem, given 36% of the Texas population in 2006 was Hispanic (American Community Survey, 2006). The driving record also does not provide information on the substances found in the driver. Further, no demographic information on students mandated to DUI education programs in Texas is collected. Because of the lack of available data, this article used data on DUI offenders who entered alcohol and drug treatment programs to begin to learn more about the characteristics of impaired drivers in Texas who were under the age of 21.

The study focuses on two research questions:

- Examine whether changes in demographic and consumption patterns have occurred over time;
- Investigate the risk factors that influence treatment entrance, completion, and abstinence 90 days after discharge from treatment.

Methods

Subjects

This is a secondary analysis of an administrative dataset containing records on 131,505 minors under age 21 admitted to treatment programs funded by the Texas Department of State Health Services (DSHS) between 1990 and 2007. Of these young clients, 5,927 were (a) on probation for driving under the influence (DUI) at the time of their admission to treatment, (b) were referred to treatment by a DUI probation officer, or (c) reported at least one DUI arrest in the past year. For brevity, they are referred to as "DUI clients." Changes in demographics over this 17 year period were examined, followed by a more in-depth comparison of DUI and non-DUI minor clients admitted in 1997 and in 2007. The 1997-2007 time period was chosen because new variables of interest, including the Addiction Severity Index (ASI) (McLellan et al., 1980), were added to the dataset in 1996.

The dataset was extracted from the Behavioral Health Integrated Provider System (BHIPS), which is an Internet-based reporting system developed by DSHS. BHIPS provides record keeping and support of state and federal administrative data reporting requirements, including the federally-mandated Treatment Episode Data System (TEDS). Reimbursement for services is tied to submission of the required client data forms. Local treatment providers submit the data on individual clients on-line and the BHIPS system edits data at submission. The treatment programs reporting to BHIPS provide services across the state and eligibility is based on clinical and financial need. Private programs that serve individuals with means to pay for their treatment do not report to this dataset.

DSHS provided a copy of the dataset to the lead author. No identifying information was received on any client and this research was approved by the Institutional Review Board of the University of Texas at Austin.

Data collected at admission in 1997 and in 2007 reflect the living and economic status of DUI and non-DUI clients at that time, as well as substance use of the client in the month before admission, and the number of days in that last month that the client experienced any of the six domains of the ASI. Past-year questions include number of DUI and public intoxication arrests and number of months employed. Questions about conditions more than a year ago include age at first use of primary, secondary, and tertiary problem substances and number of prior treatment admissions.

Analysis

Means are reported for continuous data and categorical variables. When comparisons between clients are made, t-tests are used for comparisons between normally distributed continuous data and χ^2 for categorical data. Bivariate and multivariate odds ratios were calculated using SAS v9.13 PROC GENMOD (SAS Institute, Inc., Cary, NC), which can model categorical, ordinal, and continuous responses. Variables that approached a significance of $p<0.10$ were included in multivariate logistic regression analyses to identify risk factors associated with treatment admission and completion. Because clients within a local program might have characteristics more similar to each other than those randomly selected from other programs, the Generalized Estimating Equation (GEE) model was used to account for the variation in user characteristics

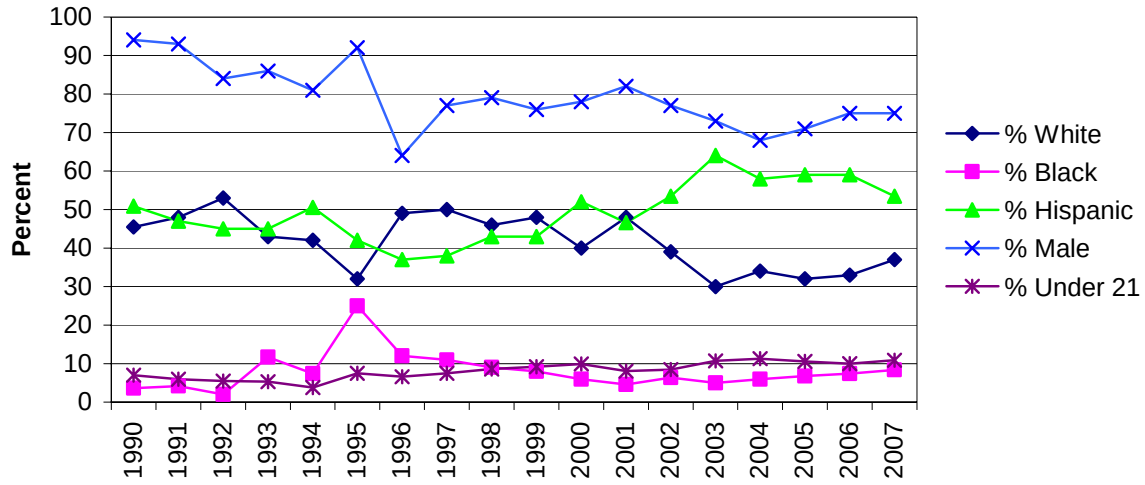
due to treatment programs. Significance was set at $p<0.05$ using the GEE parameter estimates.

Results

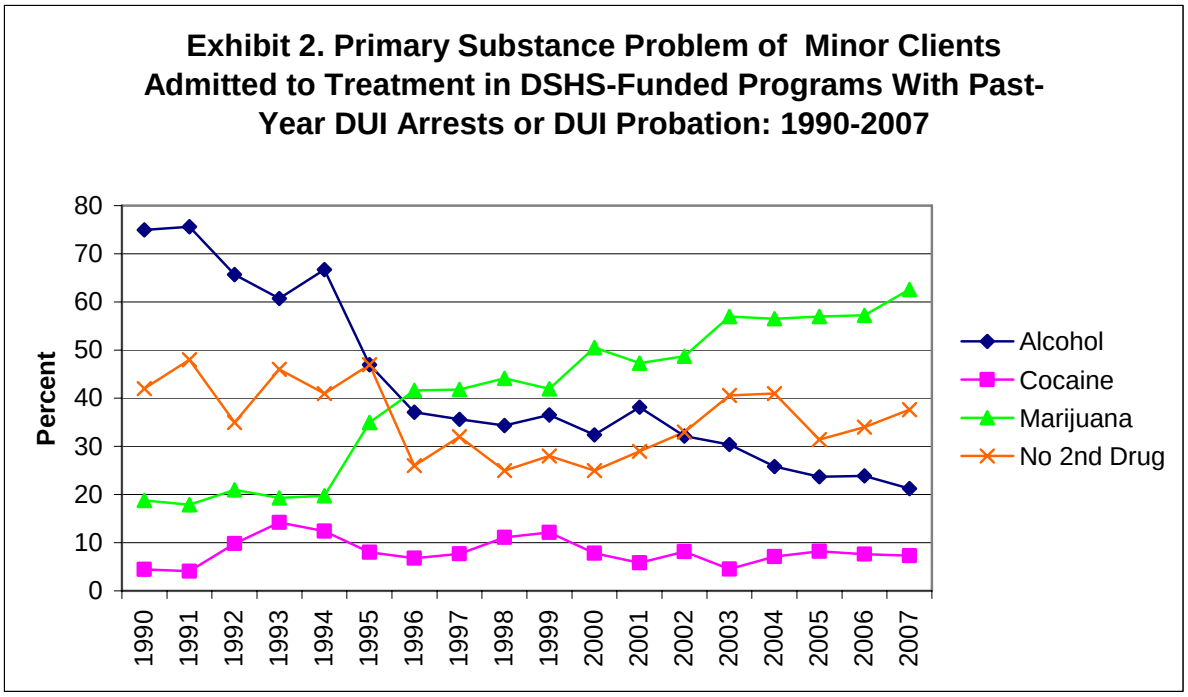
Changes in DUI Clients at Admission to Treatment from 1990-2007

The first aim of the study was to examine the changes over time in the characteristics of youths under age 21 who entered treatment as DUI clients (Exhibit 1). Between 1990 and 2007, the proportion of all DUI admissions who were under age 21 increased from 7% to 11% ($p<.0001$), the proportion that was male decreased from 94% to 75% ($p<.0001$), and the proportion that was White decreased from 46% to 37%, while the proportion of Hispanics increased from 51% to 54%, and the proportion of Blacks increased from 4% to 8% ($p<.0001$).

Exhibit 1. Characteristics of Minor Clients Admitted to Treatment in DSHS-Funded Programs With Past-Year DUI Arrests or DUI Probation: 1990-2007



As seen in Exhibit 2, between 1990 and 2007, the proportion of young DUI reporting a primary problem with alcohol decreased from 75% to 21% ($p<.0001$), the proportion with a primary problem of marijuana increased from 19% to 63% ($p<.0001$), and the proportion with a primary problem with cocaine increased from 5% to 7% ($p=.0003$). This population was also becoming more likely to be polydrug users: in 1990, 58% reported they had problems with more than one substance, but by 2007, 62% had problems with multiple substances ($p<.0001$).



Characteristics of DUI Clients at Admission to Treatment from 1997-2007

Table 1 compares the characteristics of individuals under age 21 who entered treatment as a DUI client in 1997 to those who entered in 2007. Clients in 2007 started their drug use at an earlier age, were more likely to be Hispanic, were less likely to have a primary problem with alcohol, and were more likely to report more days of problems on three of the six ASI scales.

Table 1. Demographic Characteristics of Minor Clients Admitted to Treatment in DSHS-Funded Programs With Past-Year DUI Arrests or DUI Probation: 1997 and 2007

	1997	2007	*p*
n	258	1011	
Average Age	17.5	17.3	
Average Age First Use	14.6	13.9	***
% First Treatment	86.9	87.8	
% Male	77.4	74.8	
% Black	10.7	8.4	
% White	50.2	37.2	**
% Hispanic	38.0	53.5	***
Months Employed Past Year	5.8	4.7	*
Mean Years Education	9.7	9.6	
% Homeless	3.9	7.3	*
% Primary Alcohol Problem	35.7	20.2	***
% Primary Stimulant Problem	3.0	3.0	
% Primary Cannabis Problem	41.8	62.7	***
% Primary Powder Cocaine Problem	7.7	7.3	
% No Secondary Drug Problem	31.8	37.6	
% History IV Use	16.5	4.5	***
Days of Health Problems in Last 30	1.9	1.4	
Days of Employment Problems in Last 30	7.7	10.5	**
Days of Family Problems in Last 30	6.9	9.2	**
Days of Social Problems in Last 30	3.7	7.6	***
Days of Psychological Problems in Last 30	8.7	3.1	***
Days of Drug/Alcohol Problems in Last 30	8.9	10.2	
Used Daily in Last 6 Months	31.4	30.8	
# Public Intoxication Arrests Past Year	0.9	0.2	***

**p=.05*

***p=.01*

****p<.0001*

In comparison to those clients under age 21 who did not come to treatment in 2007 as a result of a DUI (Table 2), the young DUI clients in 2007 were more likely to be male, White, to have a primary problem with alcohol, to have worked more months in the past year, to have had more arrests for public intoxication (PI) in the past year, and to report more days of problems in the 30 days before admission on four of the ASI scales. Those clients who had not had a DUI started using drugs at a younger age, were more likely to be Black, to have a primary problem with powder cocaine, a history of injecting drug use, and to use their primary drug daily.

Table 2. Demographic Characteristics of Minor Clients With or Without Past-Year DUI Arrests or DUI Probation Admitted to Texas DSHS-Funded Programs: 2007

	2007 DUI	2007 Non-DUI	*p*
n	1011	13418	
Average Age	17.3	17.2	
Average Age First Use	13.9	13.6	**
% First Treatment	87.8	91.6	***
% Male	74.8	70.8	**
% Black	8.4	14.6	***
% White	37.2	30.0	***
% Hispanic	53.5	54.2	
Months Employed Past Year	4.7	3.5	***
Mean Years Education	9.6	9.4	**
% Homeless	7.3	7.4	
% Primary Alcohol Problem	20.2	7.7	***
% Primary Stimulant Problem	3.0	4.5	
% Primary Cannabis Problem	62.7	65.2	
% Primary Powder Cocaine Problem	7.3	10.2	**
% No Secondary Drug Problem	37.6	39.8	
% History IV Use	4.5	6.6	**
Days of Health Problems in Last 30	8.5	9.2	
Days of Employment Problems in Last 30	1.4	1.4	
Days of Family Problems in Last 30	10.5	7.7	***
Days of Social Problems in Last 30	9.2	6.6	***
Days of Psychological Problems in Last 30	7.6	5.2	***
Days of Drug/Alcohol Problems in Last 30	3.1	3.6	
Days of Drug/Alcohol Problems	10.2	8.8	**
Used Daily in Last 6 Months	30.8	42.0	***
# Public Intoxication Arrests Past Year	0.2	0.1	***

**p=.05*

***p=.01*

****p<.0001*

Over time, the percentage of DUI clients entering residential treatment dropped from 33% in 1997 to 23% in 2007, and the percentage entering outpatient treatment increased from 54% to 76%, which reflects changes in the State's funding priorities.

To determine which demographic and impairment characteristics predicted entering treatment as a DUI client in the period 1997-2007, bivariate and multivariate logistic regression models were

constructed with past year arrest (0 = no DUI and 1 = DUI) as the dependent variable. As shown in Table 3, having a primary problem with alcohol and being male were the strongest predictors of entering treatment as a DUI client, while being African American and having a history of injection drug use predicted not being a DUI offender at admission to treatment.

Table 3. Multivariate Prediction of Entering Treatment with an DUI: 1997-2007

			95% CI	
Risk Factor	Odds Ratios	Pr>Z	Lower	Upper
Alcohol	4.43	***	3.90	5.04
History of Past Needle Use	0.76	**	0.64	0.90
# Days Psychological Problems at Admission	0.99	**	0.98	0.99
Number of Public Intoxication Arrests	1.17	***	1.08	1.26
Age at Admission	1.12	**	1.05	1.20
African American	0.46	***	0.37	0.58
Male	2.18	***	1.87	2.54

**p=<.05*
***p=<.01*
****p=<.0001*

Characteristics of Clients at Discharge from Treatment

The average length of stay in treatment for DUI clients under age 21 dropped from an average of 74 days in 1997 to 65 days in 2007. As would be expected, clients who completed treatment stayed there longer: 75 days for completers versus 55 days for non-completers ($p<.0001$).

The environment influenced outcomes at discharge: 70% of the DUI patients who entered residential services between 1997 and 2007 completed treatment, as did 51% of those who entered outpatient services ($p<.0001$). Eighty-eight percent of those DUI clients in residential services were abstinent at discharge, as were 66% of those in outpatient services ($p<.0001$).

As depicted in Table 4, being abstinent in the month prior to discharge was the strongest predictor of treatment completion (1 = completed and 0 = non-completion).

Table 4. Multivariate Prediction of Treatment Completion for Minor DWI Clients: 1997-2007

			95% CI	
Risk Factor	Odds Ratios	Pr>Z	Lower	Upper
Length of Stay	1.01	***	1.01	1.02
12-Step Meetings Attended in Last 30 Days	1.04	***	1.02	1.06
# Friends and Family Involved in Treatment	1.25	***	1.14	1.36
Abstinent at Discharge	9.18	***	6.39	13.20
Residential Treatment	1.46	*	1.02	2.10

**p=<.05*
***p=<.01*
****p=<.0001*

Status of Clients at 90 Day Follow-up

The status of clients 90 days after their last treatment episode was then examined. Between 1997 and 2007, 69% of the clients or their families or their probation officers were contacted at follow-up and 38% of the clients self-reported they had not used their primary problem substance in the month prior to follow-up.

A third logistic regression model was constructed to determine factors associated with being abstinent in the month prior to follow-up (0=use and 1=no use). The strongest predictor of abstinence at follow-up was not having used in the last month of treatment. The strongest risk factors were living in a household at follow-up where the individual was exposed to alcohol abuse or drug use and having been treated in a residential setting (see Table 5).

Table 5. Multivariate Prediction of Past Month Abstinence from Primary Problem Substance at 90 Day Follow-Up for Minor DUI Clients : 1997-2007

			95% CI	
Risk Factor	Odds Ratios	Pr>Z	Lower	Upper
Abstinent Last 30 Days of Treatment	2.79	***	1.89	4.12
Living in Household Where Exposed to Alcohol Abuse or Drug Use	0.31	***	0.19	0.49
ASI Drug Problems at Follow-up	0.89	***	0.86	0.92
ASI Family Problems at Follow-Up	0.95	***	0.93	0.97
ASI Psychological Problems at Follow-Up	1.03	*	1.00	1.06
12-Step Meetings Attended in Last 30 Days	1.10	**	1.04	1.17
Residential Treatment	0.34	***	0.23	0.50

**p=<.05*
***p=<.01*
****p=<.0001*

Discussion

The present research aimed to profile young Texas DUI offenders whose level of impairment was sufficient for them to enter treatment for their alcohol or drug problems. More specifically, the research aimed to determine whether the characteristics of DUI offenders under the age of 21 were changing over time as well as determine what factors were associated with treatment completion and abstinence.

First, it is noteworthy that over time the proportion of all DUI admissions who were under the age of 21 increased significantly, which is consistent with the general body of research which indicates young drivers remain at a heightened risk of engaging in DUI offences (Chou et al., 2006; Chirstoffersen et al., in press; Greening & Stoppelbein, 2000; Horwood & Fergusson, 2000). However, a more striking finding was the significant reduction in the number of young DUI admissions reporting a primary problem with alcohol and an increasing tendency to report problems with drugs and to have problems with more than one substance. The findings support the assertion that drug use among younger cohorts not only remains a serious problem, but more specifically, indicates that drug use is an increasing proportion of the DUI problem.

Besides supporting previous findings that a growing number of young drivers are likely to consume illicit substances and drive (Davey et al., 2007; Fergusson et al., in press), the results provide evidence that DUI education programs need to focus on drug consumption and the effects of drugs on driving, rather than continuing to primarily focus on the misuse of alcohol. In regard to this issue, the present study's findings also indicate that DUI program attendee's severity of drug problems may be increasing, as clients in 2007 reported that they started using drugs at an earlier age and were more likely to report more days of problems associated with such usage than the 1997 admissions. Once again, the results show that the DUI offender is changing, and DUI education and intervention initiatives need to recognize and respond to the changes.

Another key finding was that the proportion of females presenting for DUI treatment between 1990 and 2007 increased. This result is similar to contemporary research showing increasing DUI offenses and drug consumption problems among females (Maxwell & Freeman, 2007). This 2007 study of adult females entering treatment in Texas because of a DUI found they were more impaired and experienced more problems than their male counterparts and that additional resources, including treatment for co-occurring mental health problems and living in sober households, may be keys to helping these women achieve abstinence and prevent additional DUI episodes.

In addition to the changing gender distribution of DUI offenders presenting for treatment, this study documented the increasing proportion of Hispanics entering treatment with a DUI. Part of this increase is due to the growing Hispanic population in Texas (from 26% of the Texas population in 1990 to 36% in 2006), and it may also reflect the drinking pattern of Hispanics. Mexican Americans report higher rates of DUI and DUI arrests than other Hispanic groups, have higher rates of drinking and frequency heavy drinking (Caetano, 1988; Caetano & Galvan, 2001), higher mean frequency of drinking, and a higher mean frequency of drinking five or more drinks on the same occasion (Dawson, 1998; Marin & Posner, 1995) than other Hispanic groups. Mexican Americans (who may show relatively high rates of drunk driving) were less likely than Whites to believe that they would be arrested for a DUI even if stopped by the police; they were also less likely to believe that "people they know" consider drinking and driving a social problem (Cherpitel & Tam, 2000). Future research on DUI among Hispanics should include locale of arrest, pattern of DUI enforcement for local police, and the relationship between locale of arrest and prevalence of bars (Caetano et al., 2008). In addition, DUI education programs need to not only be culturally sensitive, but they need to be tailored to the behaviors and beliefs of this specific population, along with a separate curriculum for non-English speaking offenders.

Some 23% of clients under the age of 21 entered residential treatment and this paper found that being in a residential program predicted completing treatment. However, it also found that having been in a residential program was a risk factor for not being abstinent at follow-up. These seemingly contradictory findings may point to the chaotic lifestyles of these clients before treatment and after they leave a structured treatment environment, and the potential for more intensive supervision by probation to ameliorate these risky conditions.

The study's limitations should be considered when interpreting the results. First, DUI clients who come to substance treatment are not only a subset of all DUI arrestees, but they are more

impaired than most, since they need treatment services. In addition, this study is based on an administrative dataset that is representative only of lower income clients who entered publicly-funded treatment in Texas. The 90 day follow-up data were self-reported and no information was available as to whether or not the results were validated through urinalysis or breath tests. The study was also hampered since it only could report on past-year DUI arrests. The correlation between being a DUI client and the number of PI arrests in the past year may reflect DUI arrests which have been "pleaded down" to a PI, or a PI arrest may be another indication of a severe substance abuse problem that leads to arrests on the street as well as behind the wheel. However, the dataset provided insight into treatment characteristics and the short-term outcomes of those individuals who came to treatment as a result of driving under the influence.

As highlighted within this research study, and similar to an increasing body of international findings (Walsh et al., 2004), a growing issue is the act of drug driving and the presenting abuse and dependence issues that often accompany such a behavior. Therefore, there is a need to ensure contemporary DUI programs account for these substance abuse problems in order to identify and address the underlying problem as well as reduce the risk of further DUI recidivism. In addition to the DUI education process, probation personnel may need to reemphasize that driving under the influence does not just mean alcohol, but also includes other drugs, and the urines of all DUI clients should be monitored for shifts in patterns of substance abuse, such as from alcohol to cannabis (Maxwell et al., 2007).

Despite such limitations, this research paper found that the young DUI population is changing, in particular, their presenting substance abuse problem when they enter treatment. There is a need to direct a greater level of focus towards meeting the needs of this young population. Such research should to be complemented with a closer examination of the core aims and content of DUI education programs. DUI curriculum may have been written more than 10 years ago and not be that relevant to a population which is more likely to drive drugged than to drive drunk. Furthermore, young DUI offenders' characteristics and needs may be quite different to those of adult DUIs, which places a greater level of burden on both program instructors and the referral process.

While current apprehension and enforcement techniques in some countries are reflecting the growing focus on drug driving and substance abuse problems (e.g., random roadside drug testing), questions remain as to whether this focus is also being reflected in the contemporary DUI education curriculum and supervision processes. While the complexity of the DUI problem will always require multi-modal interventions, the continued demonstration of a young DUI group with unique (and increasing) substance misuse problems will further emphasize the importance of not only education, intervention, and treatment, but also the supervision and release process. Currently, it appears further research that focuses on determining the characteristics and needs of young DUI offenders can only benefit the development of effective programs to reduce the impact of substance-related illness.

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